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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,826	11/13/2001	Shinkichi Ikeda	P21688	6156
7055	7590	06/14/2006	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C.			HO, DUC CHI	
1950 ROLAND CLARKE PLACE			ART UNIT	
RESTON, VA 20191			PAPER NUMBER	
			2616	

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,826

Applicant(s)

IKEDA, SHINKICHI

Examiner

Duc C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,7-9,11-15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,7-9,11-15,17 and 19 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Specification

1. The disclosure is objected to because of the following informalities: In the brief description of the drawing, figure 11 illustrates a configuration of a mobile terminal. However, page 30-line 22 of the instant application, "900"-fig.11 denotes the base station. If "900" illustrating a base station, figure 11 should be corrected to illustrate a configuration of a base station.

Appropriate correction is required.

Drawings

2. Figures 1-2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Drawings

3. The drawing in figure 16 is objected to because its description "Communication terminal apparatus" for a mobile station is used to describe a base station.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (US 6,418,128-IDS record), hereinafter referred to as Takagi, in view of the Admitted Prior Art in figures 1-2, page 2-line 6 to page 4-line 9, of the instant application, hereinafter referred to as the APA.

Regarding claim 1, Takagi discloses scheme for adaptive control of transport layer connection in communications via radio and wire networks.

Block 1600-fig.2 corresponds to a wireless section for communicating radio signal with a terminal apparatus. Block 1604-fig.2 corresponds to a propagation state measuring section, and block 1606-fig.2 corresponds to a transport layer parameter determining section, see col.2-line 65 to col. 3-line 55.

Takagi, however, does not expressly teach a protocol relay section performing proxy processing on a network layer or a transport layer of OSI layer model.

One skill in the art would recognize the advantage of configuring a protocol relay section for performing a data relay between cable TCP processing section and a

wireless TCP processing section at a base station, the same way a gateway apparatus in the conventional wireless Internet access system would, in order to suppress the extreme deterioration on throughput when applying TCP to wireless mobile networks.

Figure 2 of the APA discloses a configuration of a gateway apparatus in the conventional wireless Internet access system. The TCP relay section 21-fig.2 performs the processing of a TCP segment so that the segment received from base station 12 is transferred to network 14-fig.1, while the segment received from the network 14 is transferred to base station 12 apparatus.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Takagi with the APA.

The suggestion/motivation for doing so would have been to provide a protocol relay section for performing a data relay between cable TCP processing section and a wireless TCP processing section, the same way a gateway apparatus in the conventional wireless Internet access system would, in order to suppress the extreme deterioration on throughput when applying TCP to wireless mobile networks

Therefore, it would have been obvious to combine Takagi with the APA to obtain the invention as specified in claim 1.

Regarding claim 3, Takagi discloses scheme for adaptive control of transport layer connection in communications via radio and wire networks.

The terminal device 1800-fig.8 inherently includes a wireless section that communicates radio signals with a base station apparatus. The communication state

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monitoring unit 704-fig.8 corresponds to a propagation state measuring section. The control unit 701-fig.8 corresponds to a transport layer parameter determining section, see col. 9-line 47 to col.10-line 22.

Takagi, however, does not expressly teach a protocol relay section performing proxy processing on a network layer or a transport layer of OSI layer model.

One skill in the art would recognize the advantage of configuring a protocol relay section for performing a data relay between cable TCP processing section and a wireless TCP processing section at a mobile station, in the same way a gateway or a base station apparatus's components have been configured, in order to communicate with the base station and to suppress the extreme deterioration on throughput when applying TCP to wireless mobile networks.

Figure 2 of the APA discloses a configuration of a gateway apparatus in the conventional wireless Internet access system. The TCP relay section 21-fig.2 performs the processing of a TCP segment so that the segment received from base station 12 is transferred to network 14-fig.1, while the segment received from the network 14 is transferred to base station 12 apparatus, see page 2-line 6 to page 4-line 9.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine Takagi with the APA.

The suggestion/motivation for doing so would have been to provide a protocol relay section for performing a data relay between cable TCP processing section and a wireless TCP processing section, in the same way a base station apparatus's

components have been configured, in order to communicate with the base station and to suppress the extreme deterioration on throughput when applying TCP to wireless mobile networks.

Therefore, it would have been obvious to combine Takagi with the APA to obtain the invention as specified in claim 3.

Regarding claim 7, figure 2 of the APA shows an IP processing section 28, and TCP processing sections 22, and 25. The I/F section 32 corresponds to the claimed processing selecting section.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art in figures 1-2, page 2-line 6 to page 4-line 9, of the instant application, hereinafter referred to as the APA.

Regarding claim 8, figure 1 of the APA discloses a configuration of a conventional wireless Internet access system. The base station 12-fig.1 includes a wireless section for communicating radio signals with mobile terminal 11-fig.1. Since the mobile terminal is capable of accessing the Internet network 14-fig.1, the mobile terminal 11 or any other mobile terminal 11 in this configuration should include a wireless section for communicating radio signals with the base station 12-fig.1, and a protocol section that performs processing on a network layer of a transport layer.

The APA in figure 1, however, does not expressly teach the base station includes (1) a first protocol relay section that performs proxy processing on a network layer of OSI layer model, (2) a second protocol relay section that performs proxy processing on a transport layer of OSI layer model, and (3) a processing selecting section that selects either the first protocol relay section or the second protocol relay section corresponding

to a type of each of the mobile apparatuses to instruct the processing for each mobile terminal apparatus.

The gateway 20-fig.2 of the APA includes: an IP processing section 28-fig. 2 (corresponding to (1)); a TCP protocol section for cable 22-fig.2 and for wireless 25-fig. 2 (corresponding to (2)); a I/F section that determines a processing of an incoming packet whether it should be processed at IP section 28 or at TCP sections 24 or 27 (corresponding to (3)), see page 2-line 6 to page 4-line 9.

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ the circuits of the gateway taught in figure 2 to the base station 12-fig.1 so that the network performance could be improved by having the propagation delays at the gateway for data exchanges between a mobile terminal and resources of the Internet eliminated, and achieving cost reduction by eliminating the external gateway for accessing the Internet in the mobile network.

7. Claims 9, 11-15, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art in figures 1-2, page 2-line 6 to page 4-line 9, of the instant application, hereinafter referred to as the APA, in view of Heller (US 2003/0235206).

Regarding claim 19, the APA in figures 1-2 illustrates a configuration of a conventional wireless Internet access. The mobile terminal 11-fig. 1 could communicate with another mobile device via one of the base station 12-fig.1 via the cable TCP section 22-fig. 2, and the TCP relay section 21-fig. 2 or access the Internet 14-fig.1 via the wireless TCP 25-fig.2, and the TCP relay section 21-fig.1.

The APA, however, does not expressly teach (1) on a transmitting side, adding to a header an instruction for relaying a packet on the data link layer, and (2) on a receiving side, extracting the packet, and when the header has the instruction for

relaying the packet on the data link layer, composing a protocol service data unit from the packet, and relaying the composed protocol service unit on the data link layer to transmit to a cable network layer.

One skill in the art would recognize the advantage of improving the throughput of a wireless TCP channel by adding modified connection requests to header (corresponding to instruction) for relaying transmitted packets on either a data link layer or a TCP layer at a transmission side, and extracting the modified connection request in order to forward the packet in accordance to the modified request at a receiving side.

Heller discloses dual proxy approach to TCP performance improvements over a wireless interface. The proxy and wireless protocol manager 26 ("PWPM 26") in the gateway 21-fig. 3 generates a header including modified connection request for transmitting a packet on the data link layer or a TCP layer from the mobile device 16-fig.2. The PWPM 32-fig. 4 of the base station 17-fig.2 extracts the modified header and processes the extracted one in accordance with the modified connection request, see 0022-0025.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the APA with Heller.

The suggestion/motivation for doing so would have been to improve the throughput of a wireless TCP channel by generating a header comprising modified connection requests for relaying transmitted packets on either a data link layer or a TCP layer at a transmission side, and extracting the modified connection request in order to forward the packet in accordance to the modified request at a receiving side.

Therefore, it would have been obvious to combine Takagi with the APA to obtain the invention as specified in claim 19.

Regarding claims 9, and 15, these claims have similar limitations as claim 19. Therefore, they are rejected under the APA-Heller for the same reasons set forth in the rejection of claim 19.

Regarding claim 11, the TCP relay section 21-fig. 2 of the APA is capable of performing packet relay processing on a layer above the data link layer, when the modified header of Heller is not for the data link layer.

Regarding claim 12, the TCP relay section 21-fig. 2 of the APA is capable of performing packet relay processing on a layer above the data link layer such as a transport layer, when the modified header of Heller is not for the data link layer.

Regarding claim 13, the I/F section 32-fig. 2 of the APA is capable of determining information on priority on transferring and outputting of the received packet from the header.

Regarding claim 14, in Heller the PWPM 32-fig.4 is capable of composing packets per unit processing on the network layer from the received packet.

performing packet relay processing on a layer above the data link layer such as a transport layer, when the modified header of Heller is not for the data link layer.

Regarding claim 15, Heller's system is capable of adding to the header a priority of packet transfer in the base station according to contents of a packet to transmit.

Allowable Subject Matter

8. Claim 18 is objected to as being independent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mikkonen (US 6,587,457); Furukawa et al.(US 2005/0286458); Inoue et al.(US 2002/0191576); Hioe et al.(US 6,341,145) are cited to show base station apparatus, mobile terminal apparatus and wireless access system using the apparatus, which is considered pertinent to the claimed invention.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Ho whose telephone number is (571) 272-3147. The examiner can normally be reached on Monday through Friday from 7:00 am to 3:30 pm.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin, can be reached on (571) 272-3134.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner

A handwritten signature in black ink, appearing to read "Duc Ho", written over the printed name.

Duc Ho

05-09-06